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ABSTRACT

Research has shown that relaxation exercises produce physical changes in students. After relaxation exercises, students appear calmer, have reduced levels of anxiety, and are more responsive to instruction. In order to determine if relaxation exercises would improve the rate at which students learn keyboarding, a study was conducted in a South Carolina high school computer laboratory. Volunteer students (N=27) from three high schools completed the project. Subjects were divided into three groups which participated in ten 1-hour keyboarding lessons after school using a computerized instructional delivery system: (1) a control group which had 15 minutes of classroom discussion but no relaxation exercises; (2) a short treatment group which received 10 minutes of relaxation exercises prior to each keyboarding lesson; and (3) a long treatment group which received 20 minutes of relaxation exercises. Students wore finger temperature indicators, took eight tests of keyboarding achievement, and completed a Questionnaire for Keyboarding Instruction at the end of the study. Treatment groups also completed a Questionnaire for Relaxation Training. The results revealed that the relaxation exercises raised finger temperature, indicating the elicitation of the relaxation response. Although the temperatures in the experimental groups increased more than those in the control group, there were no significant differences between temperatures of students in the two experimental groups. Similarly, the two treatment groups significantly outperformed the control group in keyboarding achievement but did not differ significantly from each other, suggesting that 10 minutes is sufficient time to produce a measurable change in the relaxation state. (A five-page list of references, questionnaires, and examples of relaxation exercises are appended.) (NB)

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Research Bulletin No. 46-B **June, 1986**

THE EFFECT OF TIMED RELAXATION ON KEYBOARDING ACHIEVEMENT

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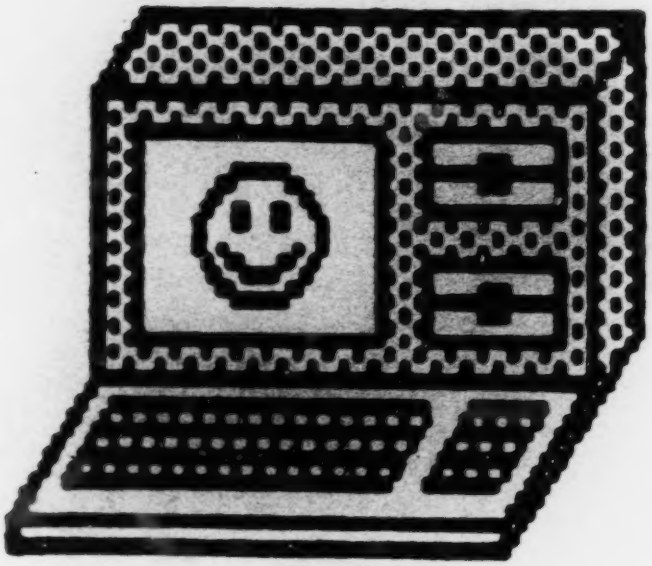

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THE EFFECT OF TIMED RELAXATION ON KEYBOARDING ACHIEVEMENT

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U. S. Department of Agriculture

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programmed the computers for supplementary drills and tests, and kept all computer equipment in good, workable condition.

The research staff for this study was small, but very productive. Mrs. Beulah El-Amin, research assistant, constructed forms for data analysis and assisted the principal investigator in administering the relaxation training. Mrs. Barbara Lin Odom, research assistant and typing teacher, constructed the supplementary drills and tests for the computer classes and developed the guided imagery exercises used in the relaxation training. Also, she conducted the control group's discussions, helped with the relaxation training, and assisted Mr. Bozard and Mr. Turner in the computer laboratory as the keyboarding instructor for the study. Dr. J. L. Quinn served as evaluator and consultant for the project. Dr. Quinn worked tirelessly to analyze the data generated by the study and was always readily available when his expert opinion was needed. His presence as a staff member and resource person was invaluable.

A very special "thank you" goes to the participants in the study who gave voluntarily of their time and energy. Without them, the study could not have been conducted.

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of the Office of 1890 Research in all phases of the project. In addition, the Office of 1890 Research in cooperation with the Cooperative Research Service of the U. S. Department of Agriculture provided probably the most essential contribution to the study--the funding.

To all of those other persons who gave of themselves to make this study a success, the principal investigator expresses deepest appreciation.

Abstract

To determine if relaxation exercises improve the rate at which students learn keyboarding, the researcher conducted a study in the computer laboratory of a large high school in the South Carolina midlands between the first week of October and the second week of December, 1985. Also, the study sought to determine the effects of relaxation exercises on finger temperature, a physiological measure of relaxation.

The research used three randomized groups of student volunteers. All three groups participated in 10 one-hour keyboarding lessons using a computerized instructional delivery system. The experimental intervention occurred prior to each keyboarding lesson. The three groups, assigned randomly to three treatments, were: 1) a control group which had classroom discussion of 15 minutes but no relaxation exercises, 2) a "short treatment" group which received 10 minutes of relaxation exercises, and 3) a "long treatment" group which received 20 minutes of relaxation exercises. Although the two treatment groups did not differ in keyboarding achievement, the two treatment groups significantly outperformed the control group.

Relaxation exercises raised finger temperature, indicating the elicitation of the relaxation response. Although the temperatures in the experimental groups

increased more than those in the control group, there was no significant difference between temperatures of children in the 10-minute and 20-minute training sessions.

Introduction

Evidence abounds that relaxation exercises produce physical changes in students (Braud, Lupin & Braud, 1975; Fling, 1984; Gillespie & Peck, 1981; Matthews, 1982; Patmon and Murphy, 1978; Suter & Loughry-Machado, 1981). After relaxation exercises, students appear calmer, have reduced levels of anxiety, and are more receptive to instruction (Matthews, 1984). Reasonably, expectations are that a calmer, less anxious student will demonstrate higher levels of achievement on measures of learning performance, particularly those which require the student to focus his or her concentration on minute details which must be recalled quickly and precisely.

In order to measure the effects of the changes from relaxation training on students' achievement, volunteer students participated after school hours in a program of relaxation exercises and keyboarding instruction on microcomputers in a computer laboratory of a high school. Since time is a valuable human resource, the study attempted to determine, also, the length of relaxation exercise, either 10-minute or 20-minute, needed to achieve beneficial results. As a measure of the physiological changes which occur in the body when a person relaxes, the study used peripheral temperature. Peripheral

temperature, when adjusted for time of day and ambient temperature (Matthews and Quinn, 1986), is an inexpensive measure of one of the mind/body relationships.

Recent innovations in public school financing and management in South Carolina, particularly those related to the landmark Educational Improvement Act, diminish the freedom with which research may be conducted in schools during the school day. Principals view with suspicion any activity which consumes time otherwise allotted to teaching and learning. In the long run, such solicitous management of the school day probably will improve schooling in the State. At the moment, however, on-site research in the public schools is extremely difficult to arrange and conduct. The present research serves usefully as a model for: 1) arranging and conducting research in the public schools even in the present hostile environment and 2) performing the research at minimal costs by using facilities and instructional personnel within the school building.

In order to use the school's resources, including its computer laboratory and two of its staff as instructors, the researcher had to conduct sessions in the afternoon after school was dismissed. The research required a popular and attractive subject because the project was forced to recruit student volunteers who normally would have gone home. To assure a large enough supply of

volunteers, recruitment of students was from the school at which the research was performed and from most other nearby schools housing the grades spanned by the research. The starting hour of the lessons allowed students from these other nearby schools enough time to arrive promptly for the lesson and any related treatment.

The popularity of the microcomputer recommended it for the project since the use of computers could be expected to increase the number of student volunteers. The researcher considered programming the computer in a popular source language, such as BASIC or PASCAL, but rejected this idea because of the difficulty in measuring week-to-week achievement in such a course. In a short study consisting only of 10 weekly one-hour sessions, it is possible that unreliability in measuring student achievement can inflate the error variance of such measures so that even a substantial treatment effect could be masked. The simplicity of measuring achievement in keyboarding and the increasing pressure imposed by the computer age on students to learn the skill made a course in keyboarding the choice of curriculum.

Related Literature

Although techniques are varied, research proves relaxation training to be beneficial in increasing achievement with children, particularly learning disabled and exceptional ones. Studies using biofeedback in

relaxation training show student gains for mathematics ability (Carter, Russell, & Whorton, 1978; Walton, 1977), reading achievement (Walton, 1977; Carter, Russell, & Whorton, 1978), spelling (Carter, Russell, & Whorton, 1978), mental aptitude (Carter, Russell, & Whorton, 1978; Rubenzer, 1984), and memory (Carter, Russell, and Whorton, 1978; Danskin & Walters, 1973). Other studies using various methods of relaxation exercises on cassette tape report improvement in handwriting (Carter & Synolds, 1974) and concentration (Disorbio, 1983/1984). Also, Fillmer (1980) reported increases in reading performance when using the technique of self-hypnosis for relaxation.

The use of imagery in relaxation training has a long history (Coueè, 1922; Luthe, 1963, 1965, 1977; Masters & Houston, 1972; Samuels & Samuels, 1975), but little reported research exists on the use of the technique per se with children. Perhaps one reason is that imagery is included as a part of several cognitive approaches: autogenics, self-hypnosis, and meditation (Smith, 1985). Lazarus (1977) suggests that imagery is an excellent technique to use with school-age children to teach self-regulation because the technique requires the student to acquire proficiency in focusing while maintaining a stance of passivity and receptivity. Bry (1978) and Shone (1984) support his views on the technique. Because of the lack of empirical data on the technique and its appeal to

young people, the researcher used guided imagery, coupled with deep breathing, in the present study to teach relaxation skills.

As a physiological measure of relaxation, peripheral temperature became the candidate. Previous studies by the researcher (Matthews, 1982; 1984) found that relaxation exercises with middle school children caused skin temperature to increase. Other research revealed a person's ability to increase or decrease skin temperature in relationship to relaxation or anxiety states (Willerman, Skeen & Simpson, 1976; Bass, Mittenberg & Peterson, 1981; Gillespie & Peck, 1981; Hama, Kawamura, Mine & Matsuyama, 1981; Suter & Loughry-Machado, 1981; Toftey, 1981; Daniel, 1982). The studies suggested that skin temperature may be affected by cognitive and attitudinal manipulation.

Hypotheses

The study sought to determine the effects of timed relaxation exercises on peripheral temperature and learning performance using empirical methods. The research hypotheses for the experiment were as follows:

1. Students who receive either 10 minutes or 20 minutes of relaxation exercises prior to keyboarding instruction demonstrate greater keyboarding achievement than similar students without such exercises.

2. Students who receive 20 minutes of relaxation exercises prior to keyboarding instruction demonstrate greater keyboarding achievement than similar students who receive 10 minutes of relaxation exercises.

3. Students who receive either 10 minutes or 20 minutes of relaxation exercises show greater gains in peripheral temperature than similar students without such exercises.

4. Students who receive 20 minutes of relaxation exercises show greater gains in peripheral temperature than similar students who receive 10 minutes of relaxation exercises.

Methods

Sample

The principal researcher visited 95 English classes in 3 high schools to secure volunteers for the project. Volunteers identified the days on which they could participate in the study, either Tuesdays, Wednesdays, or Thursdays. A total of 241 students volunteered, greatly exceeding the 69 slots (23 microcomputers x 3 days) available in the study. In order to assign students randomly to treatment on different days, the study drew participants from only those students who were available for study on all of the treatment days. Consequently, the researcher excluded from the study all students who identified attendance on any day as impossible. The

researcher assigned randomly 69 of the remaining students to one of three treatment groups. These treatment groups were: 1) control or "no treatment" group; 2) "short treatment" group; and 3) "long treatment" group. As with many studies which rely on volunteers, the number of selected students was greater than the number which showed up on the initial day of the study. New students, drawn from among the volunteers, restored the group sizes to 23 students each. For most daily classes, some students came late. As a point of information, on each day the researcher coded each student in one of four categories: 1) present both for treatment and daily lesson which included assessment of keyboarding achievement; 2) present for treatment only; 3) present for daily lesson and assessment only; and 4) absent both for treatment and daily lesson which included assessment. Only students in Category 1 provided data for the analysis, thus excluding all other students. Table 1 shows the number of Category 1 volunteers for each of the nine days of the study for which data were collected.

Procedure

Expecting Mondays and Fridays to be unpopular choices for student volunteers in an after-school program, the researcher assigned the three treatment conditions randomly to the three remaining school days--Tuesdays, Wednesdays, and Thursdays. The students in the Tuesday

Table 1

Number of Students in Each Treatment Group, Aggregated and by Race, in Each Week of the Experiment

Week	Treatment Group by Race								
	Control			10-Minute			20-Minute		
	White	Black	Total	White	Black	Total	White	Black	Total
2	7	13	20	12	10	22	14	7	21
3	7	12	19	8	6	14	14	4	18
4	5	13	18	12	2	14	11	7	18
5	4	14	18	8	0	8	8	4	12
6	4	10	14	8	2	10	12	1	13
7	4	9	13	9	2	11	6	4	10
8	2	12	14	7	3	10	7	4	11
9	2	11	13	7	2	9	4	0	4
10	1	10	11	8	2	10	8	1	9

group, the control group, received no relaxation exercises. Instead, prior to the keyboarding training, the researcher used about fifteen minutes at the beginning of the session to call the roll and answer students' questions about the course. This procedure allowed, also, an opportunity to take finger temperatures at the beginning and end of the discussion. Since an experienced typing teacher answered students' questions, it is possible that this quarter hour may have tended to improve students' keyboarding achievement in the control group relative to the other two treatment groups. The need to collect finger temperature measures and to have as many students as possible on hand for the onset of the training hou. seemed to justify a strategy which, if anything, made the test of the research hypotheses pertaining to keyboarding achievement conservative.

The "short treatment" relaxation group met on Thursdays. For about 10 minutes, the researcher discussed relaxation strategies and suggested appropriate times for students to relax. In addition, the researcher indicated some of the potential benefits of relaxation and attempted to encourage students to view relaxation as a life skill. It was during this time that research assistants attached the probe of the temperature indicator to the second index finger on the dominant hand in order for each child to record his or her temperature reading

before and after relaxation exercises. Students recorded readings on the form shown in Appendix A. For the last 10 minutes before keyboarding training, the primary researcher led the group in relaxation exercises which incorporated deep breathing and guided imagery.

On Wednesdays, the "long treatment" relaxation group met for 20 minutes of relaxation exercises of the same type given the 10-minute group. Researchers collected finger temperature in the same manner described for the other treatment group. Regardless which treatment group was involved, the final hour of each daily session consisted of keyboarding exercises managed by the Typing Tutor II keyboarding software on the Apple IIe microcomputer in the high school computer laboratory. Following a survey of several popular pieces of keyboarding software for the Apple IIe, the researcher selected MicroSoft's Typing Tutor II for use in the experiment. This courseware is very simple to use, even for total novices on a keyboard. Also, it allows the teacher to modify the program by: 1) entering keyboarding drills of the teacher's choice to ensure that various skills are developed as part of the daily drill and 2) entering keyboarding tests of the teacher's choice to measure keyboarding achievement.

Each group entered the computer laboratory for the training session after leaving a nearby assembly room in

which students gathered for roll call and, for two groups, relaxation exercises. Two teachers who were assigned regularly to the school and who were very familiar with the computer laboratory monitored, encouraged, and instructed the students. The two teachers rotated their duty days in such a way that each worked an equal number of days in each of the three groups. In addition to the computer instructor, one of the research assistants having skills as a business education teacher assisted with the one-to-one instruction of the students. In the final minutes of each hour, each student completed the keyboarding test assigned for that week. As each student completed the test, a teacher collected his or her achievement score which had been computed automatically by the software.

In order to emphasize the importance of learning touch keyboarding, the researcher prepared an additional exercise for all treatment groups and used it in the initial session. Also in that session, teachers showed students, who were novices in the use of a computer, how to load a program and use the Typing Tutor II software. Since so much time was required to accustom students to the laboratory and the software and since the initial exercise to emphasize touch keyboarding required several minutes, students took no test at the close of the first

day's training session. Because the training lasted for a total of ten weeks, this orientation left only nine weeks for measuring keyboarding achievement.

Instrumentation

Keyboarding Tests. Eight tests developed by the instructor measured students' keyboarding achievement. Administration of tests occurred during the last ten minutes of the keyboarding class. The fact that new keys were added every other week allowed students to be tested twice on the same keys; however, the test given the second week was different from the one used the previous week. Each test incorporated new keys with prior keys learned and contained approximately the same number of keyboarding strokes. The eight keyboarding tests, given in order of increasing difficulty, comprise Appendix B of this report.

Finger Temperature Indicator. The finger temperature indicator gave measures of ambient temperature and students' peripheral temperatures before and after relaxation exercises or classroom discussions. The indicator, manufactured by Human Systems Measurement, was the Enviro-Temp. The Enviro-Temp is a small unit having a probe for attaching with porous hypoallergenic tape to the middle finger on the dominant hand. The liquid crystal display on the instrument ranges from 0 degrees to 199 degrees Fahrenheit with an accuracy of $\pm$ 2 degrees Fahrenheit.

Questionnaires. The researcher developed two questionnaires, Questionnaire for Keyboarding Instruction and Questionnaire for Relaxation Training, for use at the end of the program as measurements of the feelings of students. These two questionnaires comprise Appendix C. The questions for keyboarding sampled feelings about the planning, implementation, execution of the program, and future use of the skill. The questions pertaining to relaxation training sought each student's 1) perception of the usefulness of the technique to daily life and 2) evaluation of his or her participation in practice at home, school, and other appropriate places for using relaxation skills. All students took the instrument for keyboarding skills, but only the two experimental groups answered the questionnaire on relaxation training.

Relaxation Training

The relaxation training consisted of nine relaxation exercises, a new one for each week of the program with the exception of the beginning orientation class. The exercises which were developed by the research staff used deep breathing and guided imagery. These exercises set the scenes, moods, and other circumstances necessary for students to elicit the relaxation response. The technique, classified as cognitive, emphasized the use of the imagination to change physiological conditions of the body. The exercises appealed to persons between the ages

of 13 and 17 since imagery allowed the participants to travel to such places as outer space, the zoo, the swamp, the farm, a lake, a waterfall, the dentist, and buildings with bells and chimes. Other imaginary trips took the students across the country in a balloon and a sight-seeing boat. Examples of the exercises used for the relaxation may be examined in Appendix D. The amount of descriptive detail was the only difference between the 10-minute and 20-minute exercises. The reduction in descriptive material for the 10-minute group allowed the theme, mood, and deep breathing exercises to be the same for both experimental groups. Musical selections of slow movements drawn from the classical repertoire provided a background for the reading of relaxation exercises. Although the class met only once per week, a daily reporting form encouraged students to practice deep breathing and imagery at home, thus developing the power of their imaginations. (See Appendix E.)

Operationalization of Variables

The treatment variable, operationalized as three treatment levels, was a: 1) control group; 2) 10-minute relaxation group; and 3) 20-minute relaxation group. The race variable, operationalized in three levels, was: 1) white; 2) black; and 3) other. The number of students in the other category was too small for analysis. Such students were excluded from the analysis.

Peripheral (finger) temperature served as an indicator of the relaxation state. Students had time to adjust to the room temperature prior to measuring their pretemperatures. Then, students in the control and experimental groups recorded temperature measures after the class discussion or treatment sessions. The researcher defined gains simply as posttemperatures minus pretemperatures. Although ambient temperature affects peripheral temperature, the classroom served as a controlled laboratory. First, students had an opportunity to adjust to the room temperature. Second, the room temperature remained fairly constant. Some fluctuation occurred over the nine week period, but total variance in ambient temperature was only 1.1 degrees Fahrenheit. Thus, the researcher accepted changes in peripheral temperature as genuine body temperature changes and not as a function of the surrounding air. Since all the measures were taken within the same hour each day, time of day adjustment was not an issue.

Analysis and Results

Keyboarding Tests

For each of the three treatment groups on each of the nine tested classes, the researcher computed a mean corrected words per minute. These 27 means (3 treatments by 9 testings/treatment) formed the basis for much of the subsequent analysis. The high frequency of student

absences mandated this analytical approach, even though the researcher would have preferred a repeated measures design for its greater sensitivity.

Table 2 reports the overall mean corrected words per minute, including the means for the three treatments. Also, it reports the summary table for the analysis of variance for the test of differences among means for a model in which the weekly test and the treatment group are crossed factors. The weekly test is regarded as a random factor, while the treatment factor is fixed. In this model, the appropriate error variance for the treatment mean square is the treatment by weekly test interaction. The ANOVA summary table, presented as information only, reports how the error mean square was computed. The researcher uses that statistic in subsequent *a posteriori* tests of mean differences.

Hypothesis 1. As an *a priori* contrast, the researcher used the Newman-Keuls procedure to test the difference between the mean corrected words per minute across all nine weeks for 1) the control group and 2) the combined means for the 10-minute group and the 20-minute group. (For a description of the test, see Winer, 1971, pp. 191-196).

Using Table 2, the means for the control group and the two combined treatment groups are 2.91 ($n = 9$) and 6.15 ($n = 18$). The harmonic mean for the two treatment

Table 2

Means of Average Daily Corrected Words per Minute

Control Group (n = 9)	10-minute Group (n = 9)	20-minute Group (n = 9)	Overall Mean (n = 27)
2.91	5.57	6.72	5.07

Analysis of Variance Summary Table

Source of Variability	df	SS	MS	F
Weekly Test	8	190.15	23.77	2.90
Treatment	2	68.93	34.47	4.20
Error	16	131.17	8.20	

groups is 12. The mean square for error is 8.20 with 16 degrees of freedom. From a table of the studentized range statistic (Winer, 1971, p. 871), the critical value of the studentized range, where the number of steps is 2 and the degrees of freedom of the mean square for error is 16 at the .05 level of significance, is 3.00. Thus, the critical range between means is seen to be 2.48. Since the observed means differ by 3.24 words per minute, exceeding the critical range, the research hypothesis is supported.

Hypothesis 2. Using the Newman-Keuls procedure again, the researcher compared the mean of the 10-minute group, 5.57 corrected words per minute (n = 9), and the mean of the 20-minute group, 6.72 (n = 9). The computed critical range between means is 2.86. The observed range between the means is 1.15. Therefore, Hypothesis 2 is not supported.

An examination of the contents of Table 1 reveals a problem which required attention in the analysis. As the experiment progressed, the racial distribution in the control group became increasingly disproportionate, favoring black students. On the other hand, the two treatment groups became increasingly overrepresented by whites. A volunteer group tends to lose its minority-race members once it becomes identifiably white or black. While not unanticipated, the tendency causes problems of

interpretation in experimental results. In the present case, the significant improvement in keyboarding achievement attributed to the relaxation exercises is probably attributable to the disproportionate racial makeup in the two groups.

The most rational way to determine if race is associated with keyboarding achievement is to build race into the research and analytical model as a factor. When the proportion of races in the treatment levels is variable and nonrandom, however, such a design is impossible to achieve. Table 1 shows that the makeup of one or more treatment groups had fewer than 2 members of a given racial group in every week, except Weeks 2, 3, and 8. Mean corrected words per minute for each of these three weeks in each of the three treatment groups for each of the two races produced 18 means which became the observations of the dependent variable. The researcher submitted these observations to an analysis of variance procedure in which week, race, and treatment were crossed factors. Even though the base of data for this analysis was substantially reduced over the previous analysis, its results provide compelling evidence that race is not a factor in keyboarding achievement. Table 3 reports the means by race and the ANOVA summary table.

One hardly expects a mean difference of 0.10 corrected words per minute to be statistically

Table 3

Mean Corrected Words per Minute by Race

Whites (n = 9)	Blacks (n = 9)	Total (n = 18)
3.69	3.59	3.64

Analysis of Variance Summary Table

Source of Variability	df	SS	MS	F
Week by Race	2	26.92	13.46	0.47
Week by Treatment	4	59.36	14.84	0.52
Treatment by Race	2	67.22	33.61	1.18
Week	2	134.02	67.01	2.36
Race	1	0.05	0.05	0.00
Treatment	2	152.57	76.29	2.68

significant, and the ANOVA summary table substantiates this expectation. Note that the treatment factor is the largest effect in the model, although not significant with only three weeks of data. The three treatment means over the three weeks were as follows: 1) control group: -0.24; 2) 10-minute group: 4.40; and 3) 20-minute group: 6.77. Recall that the same pattern of means appeared in the analysis of the full nine weeks of data.

Relaxation Measures (Finger Temperature)

Table 4 presents the means and standard deviations of the pre and post measures as well as the change scores (post measure minus pre measure) for the three groups. The three groups appear to be relatively close on pre measures, but post measures are further apart. The control group showed the smallest average gain (1.26), the 10-minute training group came next (1.86), and the 20-minute training group had the largest average gain (2.47).

Hypothesis 3. The hypothesized results of nine weeks of relaxation training is that the experimental groups will show a significant overall pre/post increase in peripheral temperature. Also, if the control group shows an overall increase, the experimental groups probably exhibit gains significantly higher than that increase of the control group.

Table 4

Results of the Peripheral Temperature Measure

		Control	10-min. Experiment	20-min. Experiment
Pre	Mean	89.3	90.8	89.4
	S.D.	5.7	3.4	5.4
Post	Mean	90.5	92.6	91.9
	S.D.	5.5	3.8	4.4
Change	Mean	1.26	1.86	2.47
	S.D.	2.3	2.7	3.0

Conducting a two-way analysis of variance helped to determine if the gains were significantly different among the three groups. The researcher used the week (the nine weeks of the study in which data were collected) as the second main effect. Table 5 summarizes the results of this analysis. The analysis showed the group main effect to be significant (as were the week and the interaction, although these effects are of less immediate interest), and further examination determined that both experimental groups had larger gains than the control group.

The results clearly showed that the relaxation training programs (both the 10-minute version and the 20-minute version) were successful in increasing peripheral temperature. (Since this is a measure of the relaxation state and the results were hypothesized, inference is that the relaxation training induced the relaxation state and that this is reflected in the rise in peripheral temperatures.) Both experimental groups exhibited significantly higher gains in peripheral temperature than the control group. The control group, with no relaxation training, showed an average pre/post gain, although both experimental groups had significantly larger gains. These results supported Hypothesis 3.

Hypothesis 4. It seems quite evident that the relaxation training was successful. Further, the 20-minute group had higher gains than the 10-minute group,

Table 5

Results of the Peripheral Temperature Analysis of Variance

Source	df	F value	Pr > F
Week	8	2.10	0.0364 *
Group	2	6.40	0.0019 *
Week*Group	13	2.58	0.0016 *

Comparison Groups	F value	Pr > F
1 vs 2	6.24	0.0134 *
1 vs 3	6.20	0.0137 *
2 vs 3	3.10	0.0798

implying that more practice may result in higher gains. However, this difference is not statistically significant. Hypothesis 4 is not supported; therefore, one likely assumes that 10 minutes is sufficient to produce a measurable change in the relaxation state and is, thus, enough time spent.

Prior research (Matthews, 1984) showed a practice effect in the relationship between peripheral temperature and relaxation training, indicating gradually larger gains over time. Thus, it seemed important to examine the week effect as a second fixed factor (main effect) rather than as a random factor. The analysis indicated that the gains were slightly larger later in the nine-week period; however, there was no significant or consistent rise. The data fluctuated on a weekly basis and at different rates for the three groups. This situation likely results from the small number of measures available at any given week. Thus, while the week main effect (and, also, the interaction of week and group) was significant, the actual results indicate seemingly random fluctuations and make such results difficult to interpret. Since this trend was not hypothesized, it seems best to draw conclusions based only on the group main effect.

Questionnaires for Keyboarding Instruction and Relaxation Training

The researcher administered two questionnaires to students at the end of the research program. All 33 students remaining in the three groups (9 in the 20-minute experimental group, 10 in the 10-minute experimental group, and 11 in the control group) took the Questionnaire for Keyboarding Instruction, which was composed of ten questions. Only participants in the experimental groups answered the 15-item questionnaire, Questionnaire for Relaxation Training.

All of the results of both questionnaires were positive, but there were no significant differences among the three groups. The frequencies and percents of each response to the four-choice Likert scale questions appear in Tables 6 and 7.

In order to summarize the results of the questionnaires, the researcher assigned to the responses numbers ranging from 1 to 4 (1 for Strongly Agree to 4 for Strongly Disagree for negatively stated questions and 1 for Strongly Disagree and 4 for Strongly Agree for positively stated questions). This system made possible a relative comparison of the questions, with a 4 being the most positive response. The individual item responses

Table 6

Results of the Questionnaire for Keyboarding Instruction

(Numbers beneath each response represent the frequency and percent, respectively, of students selecting each choice.)

1. I will be able to use the keyboarding skills learned in the program.

Strongly Agree		Agree		Disagree		Strongly Disagree	
10	30.3	22	66.7	1	3.0	0	0.0

2. I feel at ease using the computer keyboard.

Strongly Agree		Agree		Disagree		Strongly Disagree	
8	24.3	21	63.6	4	12.1	0	0.0

3. The computer games helped me with my speed.

Strongly Agree		Agree		Disagree		Strongly Disagree	
7	21.2	26	78.8	0	0.0	0	0.0

4. The program showed a lack of planning.

Strongly Agree		Agree		Disagree		Strongly Disagree	
1	3.0	6	18.2	17	51.5	9	27.3

5. The instructors assisted when I had questions about the computer.

Strongly Agree		Agree		Disagree		Strongly Disagree	
20	60.6	12	36.4	0	0.0	1	3.0

6. There were too many students in the typing class.

Strongly Agree		Agree		Disagree		Strongly Disagree	
0	0.0	1	3.1	19	59.4	12	37.5

7. I needed more practice than the course allowed.

Strongly Agree		Agree		Disagree		Strongly Disagree	
1	3.0	20	60.6	10	30.3	2	6.1

8. The computers used in the program were in good working condition.

Strongly Agree		Agree		Disagree		Strongly Disagree	
14	42.4	15	45.5	4	12.1	0	0.0

9. I learned to type without looking at the keyboard.

Strongly Agree		Agree		Disagree		Strongly Disagree	
6	18.8	19	59.4	7	21.8	0	0.0

10. I would be interested in learning more about the computer in another program.

Strongly Agree		Agree		Disagree		Strongly Disagree	
12	36.4	20	60.6	1	3.0	0	0.0

Table 7

Results of the Questionnaire for Relaxation Training

(Numbers beneath each response represent the frequency and percent, respectively, of students selecting each choice.)

1. Relaxation exercises help me to manage stress in my daily life.

Strongly Agree		Agree		Disagree		Strongly Disagree	
2	9.1	16	72.7	3	13.7	1	4.5

2. Practicing relaxation exercises is a good way to become calm.

Strongly Agree		Agree		Disagree		Strongly Disagree	
3	13.6	17	77.3	2	9.1	0	0.0

3. The visual imagery trips were fun.

Strongly Agree		Agree		Disagree		Strongly Disagree	
3	13.6	11	50.0	7	31.9	1	4.5

4. Using the Enviro-Temp (finger temperature) biofeedback device made me aware of how my body reacts.

Strongly Agree		Agree		Disagree		Strongly Disagree	
5	22.7	13	59.1	4	18.2	0	0.0

5. Using the imagination is a poor way to relax.

Strongly Agree		Agree		Disagree		Strongly Disagree	
0	0.0	3	13.6	13	59.1	6	27.3

6. Relaxation techniques can only be used at school with biofeedback equipment.

Strongly Agree		Agree		Disagree		Strongly Disagree	
1	4.5	0	0.0	17	77.3	4	18.2

7. Practicing relaxation exercises makes me feel better about myself.

Strongly Agree		Agree		Disagree		Strongly Disagree	
2	9.1	13	59.1	6	27.3	1	4.5

8. Practicing relaxation every day is important.

Strongly Agree		Agree		Disagree		Strongly Disagree	
2	9.1	13	59.1	6	27.3	1	4.5

9. After participating in the relaxation exercises, I am more aware of my surroundings.

Strongly Agree		Agree		Disagree		Strongly Disagree	
3	13.6	11	50.0	8	36.4	0	0.0

10. I practiced by breathing exercises at home.

Strongly Agree		Agree		Disagree		Strongly Disagree	
3	13.6	16	72.8	3	13.6	0	0.0

11. The relaxation exercises helped me control my own behavior.

Strongly Agree		Agree		Disagree		Strongly Disagree	
1	4.5	13	59.2	7	31.8	1	4.5

12. I know how to relax myself without biofeedback devices or relaxation exercises.

Strongly Agree		Agree		Disagree		Strongly Disagree	
3	13.6	17	77.3	2	9.1	0	0.0

13. Practicing relaxation exercises before going to sleep makes me restless.

Strongly Agree		Agree		Disagree		Strongly Disagree	
0	0.0	2	9.1	14	63.6	6	27.3

14. The purpose of visual imagery is to help me use my mind to achieve the relaxation response.

Strongly Agree		Agree		Disagree		Strongly Disagree	
4	18.2	16	72.7	2	9.1	0	0.0

15. I will continue to use the relaxation skills I learned in the program.

Strongly Agree		Agree		Disagree		Strongly Disagree	
4	18.2	15	68.2	2	9.1	1	4.5

ranged from a mean of 2.4 to a mean of 3.5 for the keyboarding questionnaire and from 2.6 to 3.2 for the relaxation questionnaire.

Once converted to a 1 to 4 scale, the researcher computed the total scores for the questionnaires. The keyboarding questionnaire (consisting of 10 questions) had a possible range of 10 to 40. The mean response was 31.3 with a standard deviation of 2.9. The relaxation training questionnaire (consisting of 15 questions) had a possible range of 15 to 60. The mean response was 44.1 with a standard deviation of 5.8.

The keyboarding questionnaire was highly positive. All 33 students completed the questionnaire and indicated that they saw the need for the training, that they benefitted from the program, and that they needed to continue practicing. Students indicated that they not only enjoyed the program but also that they would be interested in similar programs in the future.

Overall, the results of the relaxation questionnaire reflect the students' general enjoyment and understanding of the relaxation training. The researcher noted that some students did not fully understand some of the program's benefits, such as self-awareness and discipline, and that some did not see the need in everyday practice; but, the majority definitely saw the extension of the

training into their daily lives. Generally, all of the students enjoyed the program and seemed to benefit in varying degrees.

Discussion

This experiment provides evidence that relaxation exercises prior to keyboarding instruction and drill tend to increase a student's keyboarding achievement. The relaxation exercises were successful in inducing the relaxation response, as least as measured by peripheral temperature. However, increasing the relaxation time from 10 minutes to 20 minutes had little effect on keyboarding achievement or increased finger temperatures. Race was not a predictor of keyboarding achievement as measured in this study.

The present study is a small step aimed at answering the important question: "Do relaxation exercises prior to instruction improve pupil performance?" In a small study of this type, direct testing of the broader question is impossible. The concept "instruction" is extremely wide and diverse. One necessarily has to limit the research to a single type of instruction with well-defined learning objectives which can be achieved at a measurable level in a relatively short time. Thus, time limits the researcher to the use of only one or two types of relaxation exercises, although others may be more effective for achieving the relaxation response. The

present study is too small to address the great variety of strategies for achieving relaxation in students. Educational researchers are aware of the difficulty of measuring short-term student performance. The present study limited its observation to corrected words per minute, which can be observed with reasonable precision and seems closely connected to pupil performance in keyboarding.

In lieu of the large question of interest, with at least three complex dimensions (types of relaxation exercises, types of instruction, and measures of pupil performance), the researcher asked a simple question: "Do deep breathing and guided imagery exercises prior to computerized keyboarding drill improve the number of corrected words per minute which a pupil can type?" The question received an affirmative answer, thus, increasing the credibility that the larger question may have the same answer. Unfortunately, inductive logic allows no generalization of the finding to the larger question. It surely lends support to that question, but affirms that much more research is required. The present study warrants replication by other researchers. Related studies need to be conducted which examine other instruction, relaxation exercises, and measures of pupil performance. In this manner, the relationship of

relaxation exercises and pupil performance across a wide spectrum of instructional methods ultimately emerges. "A journey of a thousand miles begins with a single step."

References

Bass , A. E., Mittenberg, W., & Peterson, J. (1981). State-trait anxiety and biofeedback mediated control of peripheral vasomotor responser. Psychological Reports, 49(2), 363-366.

Braud, L. W., Lupin, M. N., & Braud, W. G. (1975). The use of electromyographic biofeedback in the control of hyperactivity. Journal of Learning Disabilities, 8(7), 420-425.

Bry, A. (1978). Visualization: Directing the movies of the mind. New York: Barnes & Noble Books.

Carter, J. L., Russell, H. L., & Whorton, E. B. (1978). Application of relaxation/biofeedback training in special education. Houston: University of Houston at Clear Lake City. (ERIC Document Reproduction Service No. ED 158 477)

Carter, J. L., & Synolds, D. (1974). Effects of relaxation training upon handwriting quality. Journal of Learning Disabilities, 7(4), 236-239.

Couè, E. (1922). Self-mastery through conscious auto-suggestion. London: Allen and Unwin.

Daniel, R. W. (1982). A comparison of the effects of biofeedback, suggestion, and combined biofeedback-suggestion on peripheral temperature control. (Doctoral dissertation, Ball State University, 1982). Dissertation Abstracts International, 43(2), 506-B.

Danskin, D. C., & Walters, E. D. (1973). Biofeedback and voluntary self-regulation: Counseling and education. Personnel and Guidance Journal, 51(9), 633-638.

Disorbio, J. M. (1984). The effects of the kiddie quieting response on stress and anxiety of elementary school children. (Doctoral dissertation, University of Northern Colorado, 1983). Dissertation Abstracts International, 44(11), 3523B.

Fillmer, H. T. (1980, October). Improving reading performance through hypnosis. Paper presented at the Annual Meeting of the Florida State Reading Council, St. Petersburg, FL. (ERIC Document Reproduction Service No. ED 194 875)

Fling, S. (1984, April). A comparison of meditation with other relaxation techniques. Paper presented at the Annual Meeting of the Southwestern Psychological Association, New Orleans, LA. (ERIC Document Reproduction Service No. ED 247 473)

Gillespie, C. R., & Peck, D. F. (1981). The effects of biofeedback and guided imagery on finger temperature. Biological Psychology, 11, 235-247.

Hama, H., Kawamura, Y., Mine, H., & Matsuyama, Y. (1981). Efficiency of several kinds of feedback in self-control of skin temperature. Psychologia, 24, 9-13.

Lazarus, A. A. (1977). In the mind's eye. New York: Rawson Associates Publishers, Inc.

Luthe, W. (1963). Autogenic training: Method, research, and application in medicine. American Journal of Psychotherapy, 17, 174-195.

Luthe, W. (1965). Autogenic training. New York: Grune & Stratton.

Luthe, W. (1977). Stress and self-regulation: Introduction to the methods of autogenic therapy. Pointe-Claire, Quebec: International Institute of Stress.

Masters, R., & Houston, J. (1972). Mind games. New York: Viking.

Matthews, D. B. (1982). Super power for effortless and efficient digest of language for expression with alpha rhythms in nature. (Research Bulletin 24). Orangeburg, SC: South Carolina State College. (ERIC Document Reproduction Service No. ED 217 713)

Matthews, D. B. (1984). A study of academic and psychosocial effects of relaxation training on rural preadolescents. (Research Bulletin 34). Orangeburg, SC: South Carolina State College. (ERIC Document Reproduction No. ED 252 801)

Matthews, D. B., & Quinn, J. L. (1986, April). A study of repeated wrist temperature of sixth, seventh, and eighth graders. Paper presented at the Annual Convention of the American Association of Counseling and Development, Los Angeles, CA.

Patmon, R., & Murphy, P. J. (1978, March). Differential treatment efficacy of EEG and EMG feedback for the hyperactive adolescents. Paper presented at Biofeedback Society of America Annual Meeting, Albuquerque, NM.

Rubenzer, R. L. (1984). The effects of biofeedback-induced relaxation on test/math anxiety and related test performance for children in a special elementary school for the gifted. (Doctoral dissertation, Columbia University Teachers College, 1984). Dissertation Abstracts International, 45(3), 1042B.

Samuels, M., & Samuels, N. (1975). Seeing with the mind's eye: History, techniques, and uses of visualization. New York: Random House.

Shone, R. (1984). Creative visualization. New York: Thorson Publishers, Inc.

Smith, J. C. (1985). Relaxation dynamics. Champaign, IL: Research Press.

Suter, S., & Loughry-Machada, G. (1981, August). Skin temperature biofeedback in children and adults. Journal of Experimental Child Psychology, 32(1), 77-87.

Toftey, T. G. (1981, February). Biofeedback: Learning Temperature Control. School and Community, pp. 14-16.

Walton, W. T., (1977). Electromyographic muscle training and its effects on test anxiety and self-image. Unpublished research, Brigham Young University, Provo, Utah.

Willerman, L., Skeen, J. T., & Simpson, J. S. (1976). Retention of learned temperature changes during problem solving. Perceptual and Motor Skills, 43, 995-1002.

Winer, B. J. (1971). Statistical principles in experimental design. New York: McGraw-Hill Book Company.

APPENDIX A

STUDENT TEMPERATURE REPORTING FORM

for

RELAXATION/KEYBOARDING PROGRAM

NAME _____ DATE_____

SCHOOL _____

PERIPHERAL TEMPERATURE

Pretreatment _____° Posttreatment _____°

AMBIENT TEMPERATURE _____°

APPENDIX B

Keyboarding Tests

Test--October 8-10 & 15-17

as all ask all fall; ask dad as a lad
as all fall ask dads; sad lads fall
dad adds a salad; lads add a flask;
lads add as dads; dads add a salad;
a lass asks a dad; a lad asks a dad;
ask dad; ask all; add all; ask all
all falls add; all dads ask lads

Test--October 22-24

Della leases all desks; all ease;
a field is far; as dad likes deer;
read as dad did; use a disk like a kid
likes; deer are sad; jade is fake;
dad is full; lakes are far; as us
fill a file full; said like dad did
jail is a dud; a dude asked; ask us

Test--October 29-31

Dad likes us all; are all like us
Dad is dear like us; we all use desks
jade is dear; as all files are full
are fires dead; are all jars filled
did as kids like; did like dad said
faded dresses are duds; a dude is
seeded a field; red as fire is red

Test--November 5-7

Sal does like real pea soup
squaws are people like us
Jake did pass a squirrel
were all fads like ours
please spell words for us
we read for our pleasure
our people all did so well

Keyboarding Tests

Test--November 12-14

we will all like our food
Jill saw our purple soap
a few pails were square
old folks appear so wise
we adore our dark red roses
we like deer; squirrels also
we read jokes for people

Test--November 19-21

get a vase from your shelf
he loves toast with jelly
please meet me at the store
give the height plus weight
mothers love their kids
he just saw some squirrels
this vase is very pretty

Test--December 3-5

he may go to the farm too
Mary seems very squeamish
we might get together today
you play this game very well
perhaps he will go tomorrow
do you like grape jam
they gave him a good toy

Test--December 10-12

Most men enjoy their work.
If one works with zeal,
he can accomplish much.
Expect the most of yourself.
Always do your very best.
You can achieve high levels;
just think positively.

APPENDIX C

Questionnaire for Keyboarding Instruction

Directions: Answer each statement below by circling the response which best reflects your opinion.

1. I will be able to use the keyboarding skills learned in the program.

Strongly Agree Agree Disagree Strongly Disagree

2. I feel at ease using the computer keyboard.

Strongly Agree Agree Disagree Strongly Disagree

3. The computer games helped me with my speed.

Strongly Agree Agree Disagree Strongly Disagree

4. The program showed a lack of planning.

Strongly Agree Agree Disagree Strongly Disagree

5. The instructors assisted when I had questions about the computer.

Strongly Agree Agree Disagree Strongly Disagree

6. There were too many students in the typing class.

Strongly Agree Agree Disagree Strongly Disagree

7. I needed more practice than the course allowed.

Strongly Agree Agree Disagree Strongly Disagree

8. The computers used in the program were in good working condition.

Strongly Agree Agree Disagree Strongly Disagree

9. I learned to type without looking at the keyboard.

Strongly Agree Agree Disagree Strongly Disagree

10. I would be interested in learning more about the computer in another program.

Strongly Agree Agree Disagree Strongly Disagree

Questionnaire for Relaxation Training

Directions: Answer each statement below by circling the response which best reflects your opinion.

1. Relaxation exercises help me to manage stress in my daily life.

Strongly Agree Agree Disagree Strongly Disagree

2. Practicing relaxation exercises is a good way to become calm.

Strongly Agree Agree Disagree Strongly Disagree

3. The visual imagery trips were fun.

Strongly Agree Agree Disagree Strongly Disagree

4. Using the Enviro-Temp (finger temperature) biofeedback device made me aware of how my body reacts.

Strongly Agree Agree Disagree Strongly Disagree

5. Using the imagination is a poor way to relax.

Strongly Agree Agree Disagree Strongly Disagree

6. Relaxation techniques can only be used at school with biofeedback equipment.

Strongly Agree Agree Disagree Strongly Disagree

7. Practicing relaxation exercises makes me feel better about myself.

Strongly Agree Agree Disagree Strongly Disagree

8. Practicing relaxation every day is important.

Strongly Agree Agree Disagree Strongly Disagree

9. After participating in the relaxation exercises, I am more aware of my surroundings.

Strongly Agree Agree Disagree Strongly Disagree

10. I practiced by breathing exercises at home.

Strongly Agree Agree Disagree Strongly Disagree

11. The relaxation exercises helped me control my own behavior.

Strongly Agree Agree Disagree Strongly Disagree

12. I know how to relax myself without biofeedback devices or relaxation exercises.

Strongly Agree Agree Disagree Strongly Disagree

13. Practicing relaxation exercises before going to sleep makes me restless.

Strongly Agree Agree Disagree Strongly Disagree

14. The purpose of visual imagery is to help me use my mind to achieve the relaxation response.

Strongly Agree Agree Disagree Strongly Disagree

15. I will continue to use the relaxation skills I learned in the program.

Strongly Agree Agree Disagree Strongly Disagree

APPENDIX D

A Space Trip

It's time in the daily schedule to relax. The mental and physical body needs rest periods throughout the day in order to function at maximum.

As usual, we start our relaxation period with slow, deep, rhythmic breathing. It would be better to sit in the chair with feet flat on the floor with a little distance between the feet. Inhale!... Exhale!... Counting, we go, "One, two, three." Inhale!... "Four, five, six." Exhale!... Again, inhale!... Exhale!... Now we close our eyes in order to think inwardly, shutting out all of the thoughts about people with whom we study and work. Problems of the day are forgotten, also. It is amazing that we can control our bodies by the thinking we do. When we think about calm, peaceful experiences, the body becomes rested and still. By learning to control the body, our confidence is increased. Breathing regularly and deeply, we tell ourselves that we can accomplish any activity and can feel comfortable with new experiences. With control of the body, achievement soars.

While we are resting, our thoughts wander. We wonder what it will be like when we take that first ride in a spaceship. In our minds we visualize the entire trip. Yes, the days of anticipation are nearing an end. Today is the day that represents the culmination of all of our efforts--our space voyage will commence at seven o'clock

this morning. We've trained hard and are ready to reap the fruits of our labors. It's difficult to remain calm when there is so much excitement; however, we must. Only calm, clear minds can remember the details of training.

It's now about an hour before liftoff, and we must don our space suits which will protect us during our takeoff and during our space walk. We step into our suits, place our arms in the sleeves, pull our suits over our shoulders, and zip ourselves into them. The suits are lightweight but make our legs feel heavy when walking because they are padded with insulation. With our suits properly donned, we proceed down the corridor to the spacecraft. As we enter the craft, we are struck by the thought that we are about to embark on a journey that only an exclusive few will ever take in our lifetimes: we will journey to the moon and back. With this thought in mind, we hold our shoulders and heads high to show pride.

A sudden silence fills the air as the portal is sealed shut behind us. The first leg of our journey is about to begin. We saunter to our chairs which remind us of reclining lounges. As we position ourselves in the chairs and strap ourselves into them, we are cognizant of how comfortable they are. We literally sink into their deep cushiony padding. If we were not excited about blasting off in a few minutes, we could probably fall

asleep in them. They are equipped with plush headrests and armrests. We can push a lever and elevate our feet and legs if we decide to take a short nap.

Our chairs are perched in front of a huge instrument panel. All of the lights, buttons, and switches on the panel might fluster anyone else, but we've been through extensive training in their use and are confident that we can use all of the instruments efficiently. We must always remember that a calm mind helps us recall the things we learned during our training about the instruments. Breathing deeply and slowly helps keep the body calm. With a clear mind, we are experts at monitoring all of the gauges and dials on the panel and know that we are in complete control of the vehicle.

We hear a voice come through our headphones saying, "T minus ten and counting." Liftoff is close at hand. We check our instruments carefully and wait patiently for what seems like an eternity until the final countdown is begun. Suddenly, we hear someone say, "Five, four, three, two, one, blastoff!" There is a vibration, and fire and smoke emerge from the retro-rockets as we soar upward toward the heavens. We can hear the cheers of the men in the control room. We're off of the launching pad and speeding toward adventure. A quick check of the instrument panel tells us that all is well, and we are on course to the moon. As we climb higher and higher into

the earth's atmosphere, we fix our gazes on the earth below. The perfectly laid out pastures make the earth look like a patchwork quilt. The cars on the highways look more like ants than cars, and the highways look like long narrow ribbons. As we soar higher, everything decreases in size and eventually disappears from sight. Not even the outlines of the pastures can be seen now. The beauty of the dawn impresses us as the rising sun's rays dance on the wings of our rocket. The view is breathtaking and serene. It is so peaceful and awesome that our hands, arms, and legs tingle inside the spacesuits.

Glancing down on the mounds of billowy white clouds, we realize that earth itself can no longer be seen. We are on the outer fringes of the earth's atmosphere and about to enter outer space. Everything seen through the windshield and portals has been beautiful and has made us so calm that we haven't noticed that our rocket is leveling off. We have ceased our ascent and are officially in orbit in outer space. We can sit back, be peaceful, and relax in our comfortable chairs while we enjoy the view of space from our front row seats. (Pause.... Music--one minute.) At last we are free of earth's atmospheric pull and are free from all of our cares and worries--we left all of those behind when we left the launching pad. We are now a part of history and

of the future. We are confident and assured that we are accomplishing our goals in life and are leaving something worthwhile on which future generations can build. The scientific knowledge we gather on this trip will be the cornerstone for future space travel. Our existence is important and of value to mankind.

Our spacecraft is no longer soaring; rather, it feels as though it is virtually hanging suspended and motionless in the atmosphere. Perhaps now is the time to fulfill one of our fantasies and try to walk in space. Yes, we'll do it now. We secure our helmets onto our suits and check to be sure the oxygen flows freely from the tanks on our backs to the helmets. All of our life support systems are in good working order. We're fully prepared for our excursion. We attach a lifeline around our waists and, with great expectations, exit the spaceship through a large portal on the side. Once outside the ship, we marvel at the breathtaking beauty of the heavens. It's dark out here, except for the twinkling of a myriad of stars. If we look carefully, we can recognize some of the constellations. As a matter of fact, we feel as though we could reach out and catch a star. We are so proud of our accomplishments that we feel as though we could achieve anything we want to achieve--even catching a star. We have a different perspective on everything from where we stand here in outer space. From outer space the earth

resembles a huge ball. We can distinguish the outlines of the continents if we really try. It's hard to imagine that we were standing on that ball just a short time ago. Think how far we've progressed!

Our bodies are experiencing new sensations as we move in the atmosphere of outer space. There is no oxygen here, but our lungs are sustained by the oxygen from the air tanks on our backs. We must remember that we have to breathe differently when using the air tanks, though. We must breathe slowly and deeply. As we do this, we can feel the life-giving oxygen fill our lungs. We have become so involved with our breathing that we have almost forgotten that there is no gravity in space, either. Let's experiment a little. A short walk in space could be fun. We step carefully, slowly, and very deliberately, taking care not to let both feet leave the surface of the spaceship at the same time. We take a few more cautious steps. How exciting! We <u>can</u> walk in space! Slowly and carefully, we explore the outside surface of our spacecraft, constantly remembering to breathe slowly and deeply and to walk so that one foot remains in contact with the surface of the spaceship at all times as we walk from one end of the vehicle to the other. Let's try a short hop and see what happens when we take both feet off of the surface. Ready? Hop. Ooops!... Instead of a short hop, we've lifted ourselves and landed several feet

from where we were standing. This feat prompts us to experiment further. Just imagine the things our bodies could do and feel while in this motionless state. Like circus acrobats, we lift our bodies and thrust ourselves into a series of extremely slow motion somersaults. Over and over we go. How easy this is! We escape reality for a few moments and become the stars in the center ring under the circus's bigtop, effortlessly somersaulting in a routine of seemingly impossible stunts. The crowd cheers, and we take our bows. The taste of success is exhilarating. Our bodies are weightless, and we can perform previously impossible tasks.

The possibilities of things we could accomplish seem endless. We remember seeing magicians at the circus elevate ladies into the air while in a horizontal position. That trick seems simple to us now. Surely we can accomplish the same thing now that we are in this weightless condition. Let's try it. We lie down and push away from the spacecraft with one of our feet. Yes, we, too, can accomplish the impossible. We are literally floating in space. Yes, floating in space. We close our eyes and dream of sleeping out here, floating among the stars. It is extremely peaceful and quiet out here. Nothing can bother us or interrupt our tranquil repose. There are no noises or disturbing sounds like those on earth. Our thoughts wander aimlessly. We wonder: "What

would it be like to live in space forever? Could man exist and function in a galaxy other than the Milky Way? Is there life on other planets? If so, are the inhabitants similar to humans, or do they resemble some strange form of animal?" Perhaps our voyage will mark the beginning to finding the answers to these questions. Maybe we could be involved in another journey that would find life on Mars. It's possible for us to do it, you know. After all, we have walked in space, and that's something no other boy or girl has done. Oh, well, we'll save our other adventures for another time. Right now we have to concentrate on getting back into the rocket and completing this trip.

As we awaken from our dream, we are consumed by the massiveness of space. Our eyes become fixed upon the moon--our destination. We slowly move back into the rocket, remembering how to breathe and walk as we move toward the portal that will let us enter the capsule. We enter the rocket, take off our helmets and other gear, put our chairs in a comfortable reclining position, and relax. We look out just in time to see the first craters on the dark side of the moon. Our mission is accomplished--reaching the moon. Now, we're returning home. As we relax in the comfort of our chairs, we close our eyes again and reflect upon our journey. (Pause... Music--one minute.) Yes, we have done what millions thought could never be done. However, we believed it

could be done and were able to accomplish our common goal. We reenter earth's atmosphere with the confidence that we can master any task. Nothing is too difficult for us. We have new worlds to conquer and we will conquer them.

Our rocket has landed; and, walking tall and proud, we exit it to greet the accolades of a cheering crowd. Not only have we made a contribution to science and had our names added to the list of famous persons in history, but we also have made our personal lifelong dreams become reality.

Our imaginary trip is over. Let's open the eyes slowly and look around the room. Can you see something that you missed in the room before you started relaxing? Things look more vivid after rest. Sometimes we find that we have overlooked pictures, chairs, and other items that were right in front of us. (Pause... Music--one minute.) Now, take a few minutes to become fully alert and then return to your activities.

Chimes and Bells

Relax along with me as we go on another of our very special journeys. Each journey is your own. You make it what you want it to be, and it changes each time because it exists in your own imagination or memory. We are going traveling in order to relax.

First, as with all other journeys, you must prepare. Some of you have parents who do the largest part of preparing when the family is readying to take a trip, but they ordinarily will ask you to help, too. For this trip, you can do all of the preparing yourself. The most important thing you must do to prepare for this trip is to relax. To help you relax, sit erect, but comfortably, in your seat. Put your feet flat on the floor in front of you, being sure they are about three inches apart.

Next, remember to breathe in and out normally, but deeply--in and out. Let's practice again. Inhale.... Let the air surge into the lungs, filling them to capacity. Next, exhale.... With the mouth open, blow as if you are blowing out the candles on a birthday cake. Practice breathing deeply several more times! Inhale!... Blow!... Inhale!... Blow!... Are you remembering to empty the lungs of all the air you have inhaled? Let's try again. Close the mouth and take in air through the nostrils. Now, open the mouth and push the air out.

It is time now to close your eyes and let your imagination build upon my words and my voice. Create for yourself a warm sensation. Pretend there are holes in the bottoms of your feet which will allow warmth to enter the body. Beginning with the soles of your feet, draw the warmth further upward with each breath you take. Breathe--in and out, slowly and deeply. Can you feel the warmth creeping over your body? If so, you are relaxed and ready for the trek.

Do you live near a church? If you do, I'm sure you have heard chimes many times. Our imaginary journey is to a land of chimes and bells. You are familiar with chimes. Your church's organ may be equipped with chimes. By playing just the right keys, the organist can broadcast the delicately airy sounds of the chimes over the city. You often hear hymns or classical music being played on the chimes. The resounding quality of the chimes can be heard for miles. Their enchanting music may cause you to pause to listen and take a much needed break from the not so interesting activity in which you may be engaged. Listen carefully. Can you hear any other chimes around you? I can. There is a large set of wind chimes hanging on the porch just a few feet away. The slightest movement of the wind causes them to play their own unique melody. Even though Mother Nature has no written music, she creates a song that haunts your memory. If you listen

again, you can hear the wind chimes on a neighbor's porch, too. Notice the difference in the tones and sounds. The neighbor's chimes are made of wood, but yours are made of some type of metal. Note that the wooden chimes have mellow tones, but the tones of the metal chimes are brassy. Usually, doorbells are connected to chimes which signify that someone is at the door when the doorbell button is pushed. The sounds of doorbells are many and varied. They may sound like loud bells which have different pitches--Ding... Dong... Or, they may play a few soft notes like the chimes on the organ at the church. Do you know anyone who plays the chimes in a marching band? The sounds of these chimes are very distinct in many songs. Think for a minute. Can you think of any other types of chimes? Can you hear them? Are they playing softly and quietly as most chimes do? Let's be quiet and just listen to the chimes for a minute.

Bells are everywhere. There are doorbells, handbells, bells on alarm clocks, steeple bells, bells on telephones, dinner bells, and school bells that ring to let you know when it's time to start school, change classes, and end school. Have you ever visited an old town whose courthouse had a steeple with bells? I can hear the bells ringing loudly now to call the people together for a town meeting. It is relaxing to lean back and listen to a handbell choir ring different airs on

their bells. Can you hear the different pitches of the bells as each bell is played? One becomes aware of many types of bells around Christmastime. The person in the Salvation Army booth on the sidewalk steadily rings the bell to ask for donations. The sounds of small jingle bells are heard as Christmas music fills the air; and, if you listen carefully, you might be able to hear the faint tingling of the bells on Santa's sleigh. Think of the many different sounds you have heard when certain types of bells rang. Can you hear them ringing in your mind? Relax and enjoy their music.

Keep your eyes closed. Continue breathing deeply--in and out, as if you were breathing to the rhythm of the bells. Hear them ring--Ding... Dong.... High sounds.... Low sounds.... Loud sounds.... Soft sounds.... Ding... Dong.... In your mind you can feel yourself swaying gently while you picture the bells swaying as each peals out its song from the steeple.

Let's go further into the land of chimes and bells. Imagine that you are relaxing on an Oriental carpet made of the finest, softest, warmest wool. Someone very special has woven it just for you. It took many hours of work and much patience to weave pattern upon pattern to make this beautifully colored carpet. Perhaps you are a little tired from traveling. Lie down on your warm, warm carpet and rest for the remainder of your imaginary ride.

Run your fingers through the thick pile of the carpet. Feel how warm and comfortable it is. The pile is so plush that your body literally sinks into it. Look at the blue color of the sky. The sky is as blue as any blue on your carpet. There are white fluffy clouds floating on the blue sky. The clouds make their own patterns as they float and drift in the air. As you glide through the air, the clouds seem to be saying, "Catch me if you can!" Suddenly, you are aware of how relaxed you are. You feel snug and warm as you burrow into the carpet's deep pile. You feel secure and safe, warm and relaxed.

Your carpet has taken you to the remarkable kingdom of the bells. You are in a meadow not far from a tiny village which is nestled by a mountain stream in a valley in the midst of some mammoth, snow-capped mountains. Feel the gentle breeze blowing through your hair. It is warm and pure and filled with the fragrance of the mountain flowers. Breathe deeply.... Inhale the refreshing mountain air. Looking out over the village, you see two small churches with tall pointed steeple spires. The steeples contain large bells which ring at certain times in the day. Listen! They are beginning to ring now. Can you hear them? (Music for approximately 2 minutes) Yes, the bells are saying that they tower over the village in majesty and make the village people feel calm and relaxed.

The village is old and from the distance appears grey and bronze. As you get closer to the village, you can see the houses. Many of them resemble little Swiss chalets with handmade reddish brown tiles on their roofs. Some are buff colored, some are white, and some are grey with storybook characters painted on them. If you look closely, you might be able to see Hansel and Gretel or Little Red Riding Hood. As you feel warm and comfortable and cozy, the breeze brings you the sounds of more bells. The sound is coming from an old castle with many towers standing boldly on the mountainside. Taking a few steps forward, the sound is louder. After taking a few steps backward, you realize that the sound is softer. You have discovered a way to control the loudness and softness of the chimes. Listen to the music of the bells as it floats through the air to where you are! (Pause for music for approximately 1 minute.)

The castle must have one hundred steps. You wonder if you should climb the steps. Yes, you will go closer. The sounds of the bells entice you to approach the castle. Exactly where are the bells located in the castle. You must see them. As you climb the steps of the castle, you wonder who might have walked these same steps before you. Perhaps some valiant knight trod this way in days of yore.

The steps wind a continuous path to the top of the castle. There, at last, are glimpsed the bells that have been playing the haunting melody. But, who is playing the bells? There is the belfry. The bells are swinging alternately as the long, thick rope hanging from them seems to pull them to and fro. Surely the person ringing the bells could tell you many fascinating stories about the bells and about the history of the old castle. At last, you have reached the top of the steps and the entrance to the belfry. You open the door only to find to your amazement that there is no one pulling the rope to ring the bells. Where did he go? Or, was there ever anyone there? Perhaps you'll never know, but you do know that the song of the bells is so alluring and relaxing that you feel safe and comfortable here. You need a rest after climbing the long flight of steps.

You spread your carpet on a step, sit back, and relax on the steps by the belfry. Listen as the bells continue to mysteriously play their song. Keep your eyes closed as you imagine all of the many bells and chimes. Some are metal like the ones in the belfry of the castle. Ding.... Dong.... Ding.... Dong.... Their tones resound over the valley. Some bells are plastic and make a noise like hallooooo, hallooooo. Some are glass and tinkle and

dingle as they play their airy melodies. Their tones resemble those of a spoon lightly tapping the edge of the finest crystal glasses. Perhaps a distant temple bell with deep vibrations will send its sound with the gossiping breeze.

If you listen carefully, you can hear the distant chiming of the bells on the boats that are navigating in the river below. They echo softly, ever so softly , to make their presence known. You become aware that the patterns of sound match the warm, undulating patterns of your rug. You lie back and sink into the plush, comfortable pile of the rug. Your body drinks in the warmth of the carpet and your friend, the breeze, warms you softly, very softly and gently, with the blanket of music from chimes and bells.

Keep your eyes closed and, with the rhythm of your own breathing, count to 20 or 25. "One... two... three...." Breathe.... "Six...." Inhale.... Exhale.... "Eight...." Breathe deeply.... (Music of chimes)

Now, open your eyes. Stay a moment or two in your relaxed position and look around you. Do you notice someone or something that you did not see before you started relaxing? Relaxing allows us to have a sharper vision. Keep this secret to yourself but remember that

the more you practice your relaxation exercises, the better you will become with sharp vision and insight. Try practicing every day.

With new energy, it is time to return to the day's activities. Continue with your tasks.

Balloonists

To get ready for the imaginary trip, we listen to music while we practice our breathing exercises. (Music--one minute) We can tell ourselves, also, that we are relaxing while remaining fully alert. Self-messages help us to achieve the relaxation state readily. The self-message, "I am relaxing", causes the brain to send messages to the muscles to relax.

It's a lovely summer afternoon--a perfect day for relaxing and taking it easy. We've been sitting in the lounge chairs in the yard drinking cokes and listening to the radio while soaking up the sun's rays. The sun makes us warm, producing a tingling feeling in our legs, feet, arms, and hands. The warmth of the sun makes the whole body relax.

It is nice to be able to relax and enjoy the day. Hey! Look at that! What are they? There are several ball-shaped objects in the sky and they are coming this way. Our curiosity is aroused, and we continue watching vigilantly as the objects approach. The ball-shaped objects begin to change shape and are now discernable as colorful hot air balloons. Each is brightly colored and displays its own very distinct geometric pattern. Almost any shape imaginable is depicted on the balloons. A kaleidoscope of brilliant colors--orange, red, yellow,

black, blue, white, purple--is formed against the clear blue sky as the balloons literally float across the heavens.

We close our eyes and remember the balloons. It would be fun to take an imaginary trip in a balloon. With the imagination, all things are possible. Let's envision the balloons hanging suspended in the air. See how close they appear. Reach out and touch one. We feel ourselves beginning to relax. We breathe easily and deeply, taking long, deep breaths. Inhale.... Exhale.... With every breath we fall deeper into relaxation, a state where the mind is alert but nonfocused. Inhale.... "One, two, three...." Exhale.... "Four, five, six...." Inhale, expanding the rib cage to its fullest extent.... Exhale, pushing the air completely out of the lungs.... Feeling very relaxed and carefree, we are aware that we are slipping into a dream that places us in an ascending balloon of our own. We soon will be traveling in the midst of the other balloons.

As our balloon rises, animals can be seen resting in the fields. All animals need rest to be productive. As they graze on the lush green grass, the horses swish their tails to swat at passing flies. Some of the cows are grazing, but most of them are lying in the shade of huge oak trees that are in the pastures. Yes, even the cows

know the secret of success. The cows know that they must intersperse rest with work. Frequent rest periods keep the mind alert and the body energized.

In addition to cows, we see birds. Many white pond birds are in the pasture, too. A few of them are perched on the backs of some of the cows. The cows, however, are too relaxed to be bothered by the birds; therefore, the birds are ignored and the cows continue to rest calmly. The sun's warm rays have relaxed even the young calves. Instead of romping and playing, most of them are taking leisurely naps. A feeling of contentment is evident in their faces as they lie nestled in the tall green grass. Notice how their eyelids close slowly and their heads nod lightly as they bask in the warmth of the sunshine. Watching the birds creates a relaxed sensation in our bodies. (Music--one minute)

The farmer is in the adjoining pasture planting corn to use for winter fodder for his animals. He must be sure that his animals have enough to eat and are protected over the winter. Planning is necessary for survival. We observe him as he drives the tractor from one end of the field to the other, planting his crops in almost perfectly straight rows. A cloud of dust surrounding the tractor obscures the view somewhat. There has been no rain lately; therefore, the ground is powdery dry and dust rises

easily. Gazing across the countryside, one becomes aware that the fields resemble the patchwork on our grandmother's old-fashioned pillows or quilts. The patches of brown are the freshly plowed fields. Can you imagine the pleasure of walking barefoot in them, feeling the soft dirt filter through your toes as you take each step? Let's stop for a minute and walk in one of the fields. (Music.... One minute) These dark patches are surrounded by squares of green pastures and fields planted in soybeans or cotton. Every now and then we can glimpse splotches of white cotton peeping out from under the green foliage. One square will be a dark lush green with rows running east to west while another square will be a lighter yellowish green with rows running north to south. We never noticed how many different shades of green there were until we saw the fields and pastures from the air. Green is a restful color. Just by looking at the green colors, the body feels warmth and relaxation. (Music)

Pulling the cord which hangs in the middle of the balloon above our heads allows more heated gas to enter the balloon; thus, the balloon rises higher. Yes, we are in control of our destiny. Being in control causes us to feel confident and secure. By making plans and implementing our plans, we are able to achieve whatever the mind can dream.

As we travel in the balloon, we become aware of the height at which we are flying when we see the minute size of familiar sights below the balloon. The people and cars look like little ants scurrying around on the ground. There seems to be no sense of order to what they are doing. Telephone poles take on the shapes of toothpicks, and wires connecting the poles can only be glimpsed when the eyes catch the sun's reflection of a ray of light off of one of them. From this distance, we can see how the environment below blends, giving a feeling of peacefulness. (Music)

From our lofty perch in the sky, it is easy to detect two completely different lifestyles in our community. The four-lane highway is bustling with activity as people drive hurriedly to get from one place to another. A short line of cars has been stopped temporarily by a flagman at a point where some construction is taking place. These folks are probably feeling either annoyed or rather exasperated because they have been forced to slow down their paces for a few minutes. Instead of being angered, they could use this time to relax and relieve their tension. A few deep breaths would do it. Let's show them how to become calm. Inhale.... Breathe deeply.... Exhale... Blow all of the air out of the lungs.... Inhale once more.... Exhale.... We can sense the relaxed state coming over everyone who is breathing deeply. Inhale....

Exhale.... The farmer lives a slower paced life than the business man, but even he can benefit from pausing to rest during the day. Inhale slowly.... Exhale, pushing the air out of the lungs.... The dirt road traveled by the farmer as he rides his tractor from field to field looks like a narrow brown ribbon from the sky. Our perspective is very different from up here.

Our balloon has journeyed far from the backyard. The mountains can be seen in front of us. They become more massive as the wind currents blow us closer and closer to them. It is fun to imagine that each mountain is shaped like some object or animal. The one we are approaching reminds us of an Indian's head; likewise, the one to our left resembles a huge bear. The spring rains have eroded the mountains and made interesting and unusual shapes out of each one. The creative part of me sees the shape of a very large turtle in the mountain we are approaching. See how rounded and smooth his shell is? Can you see the same thing, or do you envision something else? Our minds are free of clutter; therefore, the mountain can become anything we want it to become. Our imaginations can have free reign to function. Let your mind wander for a few minutes. (Music--one minute) See what you want to see in the shape of the mountain, or do whatever you want to do while on your trip through the mountains. Take a deep breath, relax, and let your imagination wander freely.

Inhale.... Feel the rib cage lifting and expanding as it fills with air.... Exhale.... We are completely at ease as the air escapes from the lungs.... Are you enjoying your imaginary journey? I am, and I feel calm and rested.

How beautiful are the valleys! Mother Nature has painted them more tints, tones, and shades of green than one could ever imagine. A small river runs through several of the valleys. We can almost hear it laughing as it tumbles over the rocks and boulders in its path. Wouldn't it be fun to navigate it on a raft from its beginning to its end? Surely, adventure would be found at every bend and turn. We would probably see animals and sights we have never seen before. Perhaps we might be lucky enough to find a beaver and be able to watch him making his dam. And, somewhere along the way, we ought to see a bear. He might be fishing for his lunch when we pass. The trees appear to be rising directly out of the river, forming a green blanket from the river to the summit of the mountain. Every once in a while, one can glimpse a narrow trail winding its way around the mountains. Or, one can sneak a view of one of the rustic mountain cabins that lie nestled in the forests on the sides of the mountains. Everything is peaceful in the mountains. Yes, peaceful and calm--serene. It is easy to relax when one is in the midst of quiet, calm

surroundings. Let's enjoy the serenity and calm of the mountains for a while. (Music... One minute)

We pull the cord to force more gas into the balloon in order to rise above the tall mountain that is in our path. As we glide over its crest, we hear the gurgling sound of water falling. The eyes behold the most beautiful sight we have ever seen. Tons of water emerge from nowhere and cascade down the mountainside. Unbelievable amounts of water churn and splash while tumbling over massive boulders and rocks before splashing into a sea of foam at the mountain's base. Upon reaching the bottom, the waterfall is tamed as the water passes through a huge concrete dam and is transformed into the waters of a crystal clear blue lake. A few small fishing boats dot the lake. We watch the fishermen as they make cast after cast, patiently waiting for fish to bite their lures. We are awed by the precision with which each cast is made. The fishermen are confident that, if they keep trying, they will succeed in their goal of catching fish for their supper. Watching them reminds us that we can achieve our goals if we are rested and calm and persevere.

It is almost time for our journey to end. We are in complete control of our balloon and feel confident as we pull a different cord in the top of the balloon. This cord forces air to escape from the balloon and will allow us to land the balloon safely on the ground. As we

descend, we become more aware of the lightness of the air we have been breathing at the higher altitudes. We breathe deeply, noticing how fresh the air smells. Inhaling slowly, we fill the lungs to capacity with the exhilarating mountain air. As we exhale, we become aware of just how calm and relaxed we feel. We are experiencing a feeling of freedom. We are carefree and calm. Let's remain calm and rested for a minute while we reflect on our trip. (Music... One minute)

Now, breathe deeply, remembering that you are in complete control of your thoughts and actions. Inhale very slowly.... Feel the chest expand to make room for the air being brought into the lungs.... Exhale.... Slowly and deliberately, push the air out of the lungs until you can almost feel the stomach touching the backbone. Inhale.... Exhale.... We are now completely calm and relaxed and are ready to be productive.

As you open your eyes, continue to listen to the music for a few minutes before returning to work. (Music)

APPENDIX E

STUDENT SELF-REPORT CHECKLIST

for

RELAXATION EXERCISES

DIRECTIONS: Place this checklist on your dresser or some place where you will see it daily. Then, remember to put a check mark (✓) in the space under the column which best represents the time of day you practiced. When you come to the relaxation class, bring your record with you so that the stress management teachers can collect it.

	Early Morning	During the Day	At Night
Wednesday			
Thursday			
Friday			
Saturday			
Sunday			
Monday			
Tuesday			

NAME _____ DATE _____